

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

**SUZUKI *et al.***

Application No. 10/059,145

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For: TV OBSERVATION SYSTEM  
FOR ENDOSCOPES

Art Unit: 2613

**Confirmation No. 7654**

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## **I. INTRODUCTION**

This is a Substitute Appeal Brief submitted to correct informalities in the Appeal Brief filed on February 22, 2005. This Appeal is from an Office Action mailed June 22, 2004, finally rejecting claims 54-58, 61-65 and 68-70 of the above-identified patent application. This brief is in furtherance of the Notice of Appeal, filed December 21, 2004.

### **A. Real Party in Interest – 37 C.F.R. §41.37(c)(1)(i)**

The real party in interest for this Appeal and the present patent application is Olympus Corporation, previously Olympus Optical Co., Ltd. The corporate name change was recorded in the U.S. Patent and Trademark Office on April 28, 2004 at Reel 015283, Frame 0440 and the Assignment was recorded on June 5, 2002 at Reel 012957, Frame 0949.

### **B. Statement of Related Appeals and Interferences - 37 C.F.R. §41.37(c)(1)(ii)**

This application is a division of U.S. Application 09/661,474 filed on September 13, 2000 which is a division of 08/805,477 filed on February 25, 1997 (now U.S. Patent No. 6,124,883). The cited reference Hiyama et al. U.S. Patent No. 5,436,655 is co-owned by the assignee of the current application and was a continuation of Application No. 07/924,634 filed on August 4, 1992 (now abandoned).

There are presently no appeals, interferences or judicial proceedings known to Appellant, Appellant's representatives, or the Assignee, which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

### **C. Status of Claims – 37 C.F.R. § 41.37(c)(1)(iii)**

Claims 1-53 are canceled; claims 59, 60, 66, 67 and 71-78 are withdrawn from consideration and claims 54-58, 61-65 and 68-70 stand rejected under the final Official Action of June 22, 2004, from which this appeal is taken.

**D. Status of Amendments - 37 C.F.R. §41.37(c)(1)(iv)**

There are no amendments after the final Official Action from which this appeal is taken.

**II. SUMMARY OF CLAIMED SUBJECT MATTER - 37 C.F.R. §41.37(c)(1)(v)**

**A. Features of the Invention**

The invention relates to a TV observation system for an endoscope including an endoscope body, a small-sized light source unit, and a TV camera removably mounted to the eyepiece section of the endoscope body. In various claimed embodiments, the endoscope may be structurally separated into an insertion part and a proximal holding part continuously extending from the insertion part. The endoscope may include a light guide arranged from a distal end of the insertion part through the proximal holding part. The proximal holding part may be provided with a light guide joint section where an entrance end face of the light guide is fixed. The small-sized light source unit may be constructed and arranged to be removably connected with the light guide joint section. In an embodiment of the invention, the small-sized light source unit includes a plurality of small-sized LEDs and a compounding optical system configured to compound light emitted by the plurality of small-sized LEDs. In another embodiment of the invention, the light source is integrally constructed with the camera.

**B. The Independent Claims on Appeal**

The following explanation of the claimed subject matter, with reference to the specification and drawings, is by way of example and for explanation only. The invention is not limited to the disclosed embodiments, and certain elements may be found in more than one of the disclosed embodiments.

**Claim 54**

Independent claim 54 recites a TV observation system for an endoscope. The system includes an endoscope 1 (FIG. 2, page 9, line 18), a TV camera 10 (FIG. 2, page 9, line 16), a light source 11 (FIG. 2, page 9, line 20) and 31 (FIG. 11, page 20, line 11),

wherein the endoscope 1 has an insertion part having a thin and long shape (FIG. 15), a holding part (FIGS. 2 and 15) continuously extending from a proximal end of the insertion part (FIG. 15), an eyepiece section (FIG. 2, page 5, line 3) formed on the holding part (FIG. 2), a light guide 14 (FIG. 2, page 10, line 6) that introduces illumination to a distal end of the insertion part (FIG. 2), a light source connecting section 8 (FIG. 2, page 10, line 5) formed on the holding part to achieve removable connection of the light source 11, 31 (page 10, lines 14-15). In this system, the TV camera 10 has an image pickup element (FIG. 2, page 9, line 22) and the TV camera 10 is optically connected to the eyepiece section of the endoscope 1 to receive an optical image through the eyepiece section (FIG. 2, page 10, lines 24-25), and the light source comprises a plurality of LEDs (FIGS. 2 and 3a, page 11, line 12). Furthermore, the light source 11, 31 is removably connected to the light source connecting section 8 (FIG. 2, page 10, lines 5-15), and the light source supplies illumination light to the light guide 14 of the endoscope (FIG. 2, page 10, lines 3-5).

#### **Claim 61**

Independent claim 61 recites a TV observation system for an endoscope. The system includes an endoscope 1 (FIG. 2, page 9, line 18), a TV camera 10 (FIG. 2, page 9, line 16), and a light source 11 (FIG. 2, page 9, line 20) and 31 (FIG. 11, page 20, line 11), wherein the endoscope has an insertion part having a thin and long shape (FIG. 15), a holding part (FIGS. 2 and 15) continuously extending from a proximal end of the insertion part (FIG. 15), an eyepiece section (FIG. 2, page 5, line 3) formed on the holding part (FIG. 2), a light guide 14 (FIG. 2, page 10, line 6) that introduces illumination light to a distal end of the insertion part (FIG. 2), a light source connecting section 8 (FIG. 2, page 10, line 5) formed on the holding part to achieve removable connection of the light source 11, 31 (page 10, lines 14-15). In this system, the TV camera 10 has an image pickup element (FIG. 2, page 9, line 22) and the TV camera 10 is optically connected to the eyepiece section of the endoscope to receive an optical image through the eyepiece section (FIG. 2, page 10, lines 24-25), and the light source comprises a plurality of LEDs (FIGS. 2 and 3a, page 11, line 12), and the light source 11, 31 is integrally constructed with the TV camera 10 (FIG. 2).

### **Claim 68**

Independent claim 68 recites a light source 11, 31 mounted on an endoscope. The endoscope 1 (FIG. 2, page 9, line 18) includes an insertion part having a thin and long shape (FIG. 15), a holding part (FIGS. 2 and 15) continuously extending from a proximal end of the insertion part (FIG. 15), an eyepiece section (FIG. 2, page 5, line 3) formed on the holding part (FIG. 2) and providing an optical connector to attach a TV camera to receive an optical image therethrough (FIG. 2), a light guide 14 (FIG. 2, page 10, line 6) that introduces illumination light to a distal end of the insertion part (FIG. 2), a light source connecting section 8 (FIG. 2, page 10, line 5) formed on the holding part to achieve removable connection of the light source (page 10, lines 14-15). Furthermore, the light source 11, 31 comprises a plurality of LEDs (FIGS. 2 and 3a, page 11, line 12) and supplies illumination light to the light guide 14 of the endoscope 1 (FIG. 2).

### **III. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL — 37 C.F.R. § 41.37(c)(1)(vi)**

In the June 22, 2004 Final Office Action, claims 54-55, 57-58, 61, 63-65 and 68-70 were rejected under 35 U.S.C. §102(b) based on Hiyama *et al.* (U.S. Pat. No. 5,436,655) (hereinafter "Hiyama"). Claims 56 and 62 were rejected under 35 U.S.C. §103(a) based on Hiyama. Claims 1-53 have been canceled and claims 59-60, 66-67 and 71-78 have been withdrawn from consideration as being directed to a non-elected invention.

Thus, the grounds of rejection to be reviewed on appeal are:

- 1) whether claims 54-55, 57-58, 61, 63-65 and 68-70 are anticipated under 35 U.S.C. §102(b) based on Hiyama; and
- 2) whether claims 56 and 62 are obvious under 35 U.S.C. § 103(a) based on Hiyama.

### **IV. ARGUMENT - 37 C.F.R. §41.37(c)(1)(vii)**

#### **A. The Law Regarding Anticipation Under 35 U.S.C. § 102(b)**

35 U.S.C. § 102(b) indicates that a person shall be entitled to a patent unless:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Further, MPEP § 2131.02 states that "[t]he identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Finally, even within a single reference, separate portions of that reference cannot be properly combined in the absence of "particular findings...as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected [those portions] for combination in the manner claimed." *In re Kotzab*, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000).

**B. Rejection Under 35 U.S.C. § 102(b)**

**1. The Cited Reference: Hiyama**

Hiyama discloses an electronic endoscope apparatus for three dimensional measurement that includes an endoscope and a measuring light generating unit to which the endoscope is connected. (*See* col. 7, lines 23-27 and col. 20, line 21). Hiyama discloses that the endoscope has an elongated inserting section that is capable of being inserted into the body and an operating section large in width that is connected to a rearward end of the elongated inserting section. (*See* FIGS. 13, 18 and 19 and col. 20, lines 33-37). Hiyama further discloses that the endoscope includes a universal cable that extends from a side of the operating section 208 and that is connected to a light source unit. (*See* FIGS. 13 and 18 and col. 20, lines 37-42). In Hiyama, an image guide is passed through the universal cable and extends from the light source unit to the end of the elongated inserting section. (*See* FIGS. 18 and 19 and col. 25, lines 26-35). Hiyama discloses that the illuminating light and the measuring light, which are respectively generated by a lamp and a laser within the measuring light generating unit, are passed through the light guide and are projected through a projecting lens to an object. (*See*

FIG. 18 and col. 21, lines 26-28). Hiyama also discloses that the object illuminated by the illuminating light is imaged on an image pickup surface of a CCD that is arranged at a focal surface of an objective lens. (See FIGS. 13 and 18 and col. 21, lines 59-64). The electric signal generated by the CCD is transmitted to an outside signal processing circuit via a signal cable that is passed through the elongated inserting section and the universal cable. (See FIG. 18 and col. 25, lines 64-68).

**2. Claims 54-55, 57-58, 61, 63-65 and 68-70  
Are Novel Over Hiyama**

**a) Claim 54**

Appellant respectfully submits that Hiyama fails to teach or suggest all of the features recited by independent claim 54. Specifically, Hiyama fails to teach or suggest a TV observation system wherein, *inter alia*, "the endoscope has [...], an eyepiece section formed on the holding part, [...and] a light source connecting section formed on the holding part to achieve removable connection of the light source." Hiyama is completely silent about these features. Hiyama does not disclose an endoscope having an eyepiece unit at all. Hiyama discloses an electronic endoscope that is able to transfer an electric signal from the distal end of the elongated inserting unit to the outside signal processing unit, not a unit having a magnifying objective lens, and an eyepiece for observing the transmitted image. Hiyama clearly discloses, for example, that:

the endoscope apparatus 201 for three dimensional measurement, according to the ninth embodiment, comprises an **electronic endoscope** (hereinafter referred to as an "electronic scope").

(See col. 20, lines 19-22, emphasis added). Hiyama does not teach or suggest in any of the disclosed embodiments an endoscope with an eyepiece section, much less an eyepiece section formed on the holding part of the endoscope.

The Examiner interpreted reference numeral 235 as being the eyepiece section and reference numeral 211 as being the holding part. Appellant respectfully disagrees with this characterization of Hiyama. Hiyama merely discloses that reference numeral 235 corresponds to a signal connector and reference numeral 211 to a connector. The signal connector 235 in Hiyama is engaged into the signal connector receptor 236 and is configured to relay the electronic signal from the CCD to an outside processing circuit.



Therefore, the signal connector 235 is not an eyepiece section because it does not and cannot relay an optical signal. Furthermore, Appellant respectfully notes that the element 211 (identified in the Final Office Action as the "holding part") does not "continuously [extend] from a proximal end of the insertion part", as recited in claim 54. Hiyama discloses, for example, that:

The electronic scope 202 has an inserting section 207 which is elongated and which has elasticity so as to be capable of being inserted in a body cavity or the like, an operating section 208 large in width connected to a rearward end of the inserting section 207, and a universal cable 209 extending from a side of the operating section 208. An integrated or overall connector 211 mounted on an end of the universal cable 209 can detachably be connected to the light-source processing unit 205.

(See col. 20, lines 33-42, and FIG. 18, emphasis added). Therefore, in Hiyama the only part that continuously extends from the inserting section 207 is the operating section 208. The Examiner's attention is also directed to, for example, FIGS. 13 and 18 that clearly depict the operating section 208 as being located at the proximal end of the inserting part 207. However, as can be seen in these Figures, the operating section does not have an eyepiece section. In addition, Hiyama clearly discloses that the connector 211 extends from the universal cable 209 that is attached to the operating section, not from the proximal end of the inserting section 207.

Furthermore, Appellant respectfully submits that Hiyama fails to teach or suggest a TV observation system wherein, *inter alia*, "the TV camera has an image pickup element and said TV camera is optically connected to the eyepiece section of the endoscope to receive an optical image through said eyepiece section." Appellant respectfully notes that the Examiner has failed to identify where in Hiyama such a TV camera is disclosed. The Examiner interpreted, in the Final Office Action, the image pickup element of claim 54 as being element 237 in Hiyama. Appellant respectfully disagrees. Reference numeral 237 merely corresponds to a signal processing circuit that is configured to process the electrical signal generated by the CCD. Hiyama discloses, for example, that:

The signal processing circuit 237 executes signal processing which generates a standard image signal from the output signal from the CCD 232.

(See col. 22, lines 7-10). In addition, Appellant respectfully notes that element 237 is not optically connected to the signal connector 235, which is identified as the "eyepiece section" by the Examiner. As mentioned previously, the signal connector 237 is electrically connected to the output of the CCD element 232. Hiyama discloses, for example, that:

The CCD 232 is connected to a signal connector 235 of the connector 211 through a signal cable 234, and is connected to a signal processing circuit 237 and a distance computing circuit 238 through a signal connector receptor 236 to which the signal connector 235 is connected.

(See col. 21, lines 67-68 and col. 22, lines 1-4). Clearly, in Hiyama, the TV camera or the image pickup element is not optically connected to the eyepiece section.

Appellant respectfully notes that the only element in Hiyama that would most closely correspond to the TV camera is the CCD element 232 because this element is configured to pickup/capture an image. Hiyama states, for example:

The subject 426 illuminated in a wide area manner by the illuminating light is imaged on an image pickup surface of a CCD 432 serving as an image pickup element arranged on a focus surface of an objective lens 431 by the objective lens 431 mounted on an observing window in the forward end portion 412.

(See col. 39, lines 35-40). However, CCD element 232 is not optically connected to the signal connector 235, which is identified as the "eyepiece section" by the Examiner.

Furthermore, Appellant respectfully submits that Hiyama fails to teach or suggest a TV observation system wherein, *inter alia*, "the light source comprises a plurality of LEDs, said light source is removably connected to the light source connecting section, and the light source supplies illumination light to the light guide of the endoscope." Hiyama merely discloses that the endoscope projects an illuminating light and a measuring light, which two types of light are clearly distinguished from each

other. Hiyama further discloses that the illuminating light, which is generated by a lamp, is configured to illuminate the object in a wide area while the measuring light is projected on the object so as to form a tiny spot. Hiyama discloses, for example, that:

The illuminating light ... is emanated toward a subject 226 further through an illuminating lens 225 from an end surface fixed to the forward end portion 212 adjacent to the outgoing side, and is illuminated toward the subject 226 in a wide area manner.

(See col. 21, lines 10-16, emphasis added), and that:

the measuring light ... is emanated toward the subject 226 further through a projecting (light projecting) lens 227 from the end surface adjacent to the outgoing side fixed to the forward end portion 212, and forms a minute light spot on the surface of the subject 226.

(See col. 21, lines 26-30, emphasis added). However, Hiyama fails to teach or suggest a light source that supplies the illuminating light and which includes a plurality of LEDs. The Examiner asserted in the Final Office Action, that element 255 corresponds to the light source of claim 54. Appellant respectfully disagrees and notes that element 255 merely outputs the measuring light, not the illuminating light. Appellant notes that the measuring light that is generated by the LED source 255 is not sufficient to supply illumination light to the endoscope because Hiyama discloses that the spot of the measuring light is approximately one micron. (See col. 8, lines 22-24).

Furthermore, Hiyama fails to teach or suggest a plurality of LEDs as recited in claim 54. The Examiner relied on elements 255 and 423 as being the plurality of LEDs. Appellant respectfully disagrees because neither of these elements corresponds to a plurality of LEDs. First, Appellant notes that element 255 merely corresponds to a single LED, not a plurality of LEDs. Hiyama discloses, for example, that:

a measuring light of an LED 255 arranged in a direction perpendicular to the optical path is condensed by a condenser lens 224, is reflected in the reflecting region 254b of the rotary disc 254, and is supplied to the image guide connector 217a.

(See col. 26, lines 39-44, emphasis added). Second, Appellant notes that element 423 merely corresponds to a group of light emitting elements 423. Hiyama discloses, for example, that:

The group of light emitting elements 423 and the group of condenser lenses 424 are mounted on a table 429 driven in a vibratory manner by the piezo-electric element 428, for example.

(See col. 39, lines 7-10). However, Hiyama fails to teach or suggest that this group of light emitting elements is a plurality of LEDs. In order to make a showing of anticipation, "each and every element as set forth in the claim" must be found in the reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Furthermore, "the identical invention must be shown in as complete detail as is contained in the claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1126, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989) (Emphasis added).

In addition, "to anticipate, the reference must...enable one of skill in the art to make and use the claimed invention." *Bristol-Myers Squibb Co. v. Ben Venue Laboratories, Inc.*, 246 F.3d 1368, 1374, 58 USPQ2d 1508 (fed. Cir. 2001). Appellant respectfully submits that Hiyama does not contain an enabled disclosure that would teach one skill in the art to use the LED element of the embodiment of FIG. 19 as the light emitting element in the plurality of light emitting elements shown in the embodiment of FIG. 37. Moreover, Appellant respectfully submits that it is improper to pick and choose elements from different embodiments in combination in order to establish a *prima facie* case of anticipation, unless there is some motivation or suggestion to do so. In the present case, the Examiner combined the apparatus of FIG. 37 with the apparatus of FIG. 19, but failed to establish any motivation to do so. (*In re Kotzab*, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1318 (Fed. Cir. 2000)).

The Examiner indicated in the Final Office Action dated June 22, 2004, that the TV camera, the eye-piece section and the optical connection were disclosed in column 75 of Hiyama. The Examiner also indicated that "FIG. 23 for example, illustrates the concept of applicant's eye-piece section 211 comprising an image pick-up element 232." (See page 4, paragraph 9 of the June 22 Office Action). The Examiner then went

on to state "column 75 of Hiyama et al explicitly discloses the concept of such well known feature common in the art." Appellant respectfully disagrees.

First, Appellant notes that Hiyama does not teach or suggest an eye piece section (identified as element 211) in FIG. 23. Rather, Hiyama discloses a connector 211. Second, Hiyama does not teach or suggest in any way that the CCD element 232 is optically connected to element 211. Third, Appellant respectfully submits that there is nothing in column 75 that teaches or suggests the combination of elements as recited in claim 54. For example, column 75 merely states:

In connection with the above, the invention should not be limited to a case of the electronic scope. It will be apparent, however, that the invention can similarly be applied to an arrangement in which a TV camera building therein image pickup means such as a CCD or the like is mounted on an optical endoscope such as a fiber scope or the like. Furthermore, each of the above-described embodiments is an embodiment in which image pickup means for normal or ordinary observation and image pickup means for detection of a measuring light are used as both image pickup means. However, the image pickup means for ordinary observation and the image pickup means for detection of a measuring light may be provided or arranged separately. Moreover, the image pickup means provided in use both as the image pickup means for ordinary observation and the image pickup means for detection of a measuring light may be used in time sharing. Further, the arrangement may be such that two image pickup means are provided, and one or both of the image pickup means, for example, is or are used to detection of a distance or the like, or is or are also used as stereophonic observation. Also in this case, the arrangement may be used in time sharing.

(See col. 74, lines 67-68 and col. 75, lines 1-22). Appellant respectfully notes that "to anticipate, the reference must...enable one of skill in the art to make and use the claimed invention." *Bristol-Myers Squibb Co. v. Ben Venue Laboratories, Inc.*, 246 F.3d 1368, 1374, 58 USPQ2d 1508 (Fed. Cir. 2001). Furthermore, "the identical invention must be shown in as complete detail as is contained in the claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1126, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989) (Emphasis added). Appellant respectfully submits that column 75 merely discloses that alternative arrangements may be possible. It does not contain an enabled disclosure that

would teach one skill in the art how to make these alternative arrangements or how to modify Hiyama's embodiments in view of the disclosure of column 75. For example, Appellant respectfully submits that there is nothing in column 75 that provides sufficient details to one of ordinary skill in the art on how and where to arrange the TV camera and the image pickup means to obtain the invention of claim 54. As another example, there is also nothing in column 75 that provides sufficient details to one of ordinary skill in the art on how and where to arrange these features in an optical endoscope to obtain the TV observation system recited in claim 54. Therefore, Appellant respectfully submits that the Examiner has failed to establish *a prima facie* case of anticipation. Furthermore, in order to combine the teaching of column 75 with any of the embodiments relied upon by the Examiner, there must be some motivation or suggestion to do so. "[A] statement that modifications of the prior art to meet the claimed invention would have been " 'well within the ordinary skill of the art at the time the claimed invention was made' " because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish *a prima facie* case of obviousness without some objective reason to combine the teachings of the references." (*Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993).

*See also In re Kotzab*, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1318 (Fed. Cir. 2000)).

Accordingly, Appellant respectfully submits that claim 54 is patentable over Hiyama. Therefore, the rejection of claim 54 must be withdrawn.

#### **b) Claim 55**

Claim 55 depends from claim 54 and is therefore patentable for at least the same reasons provided above related to claim 54. Claim 55 recites that the light source further comprises an optical element that compounds light emitted from the plurality of LEDs. Hiyama fails to teach or suggest this feature. First, Appellant respectfully notes that Hiyama fails to teach or suggest a plurality of LEDs for the same reasons provided above in relation to claim 54. Second, Appellant respectfully submits that Hiyama fails to teach or suggest an optical element that compounds light emitted from a plurality of LEDs. The optical element 224 disclosed in the embodiment of FIG. 19 is merely

adapted to condense light from the single LED 255. There is nothing in Hiyama that indicates that optical element 224 can be configured to compound light from the group of light emitting elements 423, much less from a plurality of LEDs. In fact, Hiyama teaches away from such a possibility as Hiyama teaches that a group of condenser lenses is needed to project light from the group of light emitting elements 423. Hiyama discloses, for example, that:

The group of light emitting elements 423 and the group of condenser lenses 424 are mounted on a table 429 driven in a vibratory manner by the piezo-electric element 428, for example.

(See col. 39, lines 7-10). Therefore, Hiyama cannot anticipate, in any way, claim 55. Accordingly, the rejection of claim 55 must be withdrawn.

**c) Claim 57**

Claim 57 depends from claim 54 and is therefore patentable for at least the same reasons provided above related to claim 54. Claim 57 further recites that the light source further comprises a control mechanism that controls electric currents applied to the plurality of LEDs, so that amounts of light emission of the LEDs are set in a desired ratio. Hiyama fails to teach or suggest this feature. The Examiner interpreted the control mechanism of claim 57 as being the scanning control means 430 shown in FIG. 37. Appellant respectfully disagrees. First, it is respectfully submitted that the scanning control means 430 is not configured to control electric currents applied to the group of light emitting elements 423. Rather, scanning control means 430 merely apply a voltage to the actuator 428 on which the group of light emitting elements 423 is disposed. Hiyama discloses, for example, that:

Because a drive signal is applied to the piezo-electric element 428 from measuring-light scanning control means 430, the piezo-electric element 428 is vibrated in a direction perpendicular to the sheet surface as indicated by an arrow A, for example, in FIG. 37 (that is, a direction perpendicular to an arrangement direction of the group of light emitting elements 423 or the group of condenser lenses 424). When the piezo-electric element 428 is vibrated in the vertical direction, the group of light emitting elements 423 is also vibrated, so that the measuring-light rows are scanned in a

direction perpendicular to the measuring-light rows, toward the subject 426 through the projecting lens 427.

(See col. 39, lines 7-23). Thus the cited element merely scans the light rows, it does not control a ratio of light emission. Second, the scanning control means 430 is not configured to control electric currents applied to a plurality of LEDs to control ratios of light emission. As mentioned previously, Hiyama fails to teach or suggest a plurality of LEDs that is used to provide illuminating light. For at least these reasons, Appellant respectfully submits that claim 57 is allowable over Hiyama. Therefore, the rejection of claim 57 must be withdrawn.

**d) Claim 58**

Claim 58 depends from claim 54 and is therefore patentable for at least the same reasons provided above related to claim 54. Claim 58 further recites that the light source is configured to sequentially emit a light of at least three colors, and comprises an LED that emits red light, an LED that emits green light, and an LED that emits blue light. Appellant respectfully submits that these features are not taught or suggested in Hiyama. Hiyama merely discloses that a rotary color disc having filters can be used in combination with the illuminating lamp. (See col. 13, lines 19-27). Appellant notes that the Examiner has failed to identify in the Final Office Action where such features are disclosed. For at least this reason, it is respectfully submitted that claim 58 is patentable over Hiyama. Therefore, the rejection of claim 58 must be withdrawn.

**e) Claim 61**

Appellant respectfully submits that Hiyama fails to teach or suggest all of the features recited by independent claim 61. As mentioned previously, Hiyama fails to teach or suggest a TV observation system wherein, *inter alia*, "the endoscope has ..., an eyepiece section formed on the holding part, ...[and] a light source connecting section formed on the holding part to achieve removable connection of the light source." Hiyama is completely silent about these features. Hiyama does not disclose an endoscope having an eyepiece unit at all. Hiyama discloses an electronic endoscope that is able to transfer an electric signal from the distal end of the elongated inserting unit to the outside signal processing unit, not a unit having a magnifying objective lens, and an



eyepiece for observing the transmitted image.

As also mentioned previously, Hiyama merely discloses that reference numeral 235 corresponds to a signal connector and reference numeral 211 to a connector. The signal connector 235 in Hiyama is engaged into the signal connector receptor 236 and is configured to relay the electronic signal from the CCD to an outside processing circuit. Therefore, the signal connector is not an eyepiece section because it does not relay and cannot an optical signal. Furthermore, Appellant respectfully notes that the element 211 (identified in the Final Office Action as the "holding part") does not "continuously [extend] from a proximal end of the insertion part", as recited in claim 54.

In addition, Appellant respectfully notes that, in Hiyama, the only part that continuously extends from the inserting section 207 is the operating section 208. The Examiner's attention is also directed to, for example, FIGS. 13 and 18 that clearly depict the operating section as being located at the proximal end of the inserting part 207. However, as can be seen in these Figures, the operating section does not have an eyepiece section. In addition, Hiyama clearly discloses that the connector 211 extends from the universal cable 209 that is attached to the operating section, not from the proximal end of the inserting section 207.

Furthermore, Appellant respectfully submits that Hiyama fails to teach or suggest a TV observation system wherein, *inter alia*, "the TV camera has an image pickup element and said TV camera is optically connected to the eyepiece section of the endoscope to receive an optical image through said eyepiece section." Appellant respectfully notes that the Examiner has failed to identify where in Hiyama such a TV camera is disclosed. The Examiner interpreted, in the Final Office Action, the image pickup element of claim 54 as being element 237 in Hiyama. Appellant respectfully disagrees. Reference numeral 237 merely corresponds to a signal processing circuit that is configured to process the electrical signal generated by the CCD.

In addition, Hiyama fails to teach or suggest a light source that supplies the illuminating light and which includes a plurality of LEDs. The Examiner asserted in the Final Office Action, that element 255 corresponds to the light source of claim 54. Appellant respectfully disagrees and notes that element 255 merely outputs the measuring light, not the illuminating light. Appellant notes that the measuring light that

is generated by the LED source 255 is not sufficient to supply illumination light for the endoscope because Hiyama discloses that the spot of the measuring light is approximately one micron. (See col. 8, lines 22-24).

Furthermore, Hiyama fails to teach or suggest a plurality of LEDs as recited in claim 54. The Examiner relied on elements 255 and 423 as being the plurality of LEDs. Appellant respectfully disagrees because, as mentioned previously, neither of these elements corresponds to a plurality of LEDs. Appellant respectfully submits that Hiyama does not contain an enabled disclosure that would teach one skill in the art to use the LED element of the embodiment of FIG. 19 as the light emitting element in the plurality of light emitting elements shown in the embodiment of FIG. 37.

The Examiner indicated in the Final Office Action dated June 22, 2004, that the TV camera, the eye-piece section and the optical connection were disclosed in column 75 of Hiyama. The Examiner also indicated that "FIG. 23 for example, illustrates the concept of applicant's eye-piece section 211 comprising an image pick-up element 232." (See page 4, paragraph 9 of the June 22 Office Action). The Examiner then went on to state "column 75 of Hiyama et al explicitly discloses the concept of such well known feature common in the art." Appellant respectfully disagrees.

First, Appellant notes that Hiyama does not teach or suggest in FIG. 23 an eye piece section (identified as element 211). Rather, Hiyama discloses a connector 211. Second, Hiyama does not teach or suggest in any way that the CCD element 232 is optically connected to element 211. Third, Appellant respectfully submits that there is nothing in column 75 that teaches or suggests the combination of elements as recited in claim 54.

Appellant respectfully notes that "to anticipate, the reference must...enable one of skill in the art to make and use the claimed invention." *Bristol-Myers Squibb Co. v. Ben Venue Laboratories, Inc.*, 246 F.3d 1368, 1374, 58 USPQ2d 1508 (fed. Cir. 2001). Furthermore, "the identical invention must be shown in as complete detail as is contained in the claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1126, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989) (Emphasis added). Appellant respectfully submits that column 75 merely discloses that alternative arrangements may be possible. It does not contain an enabled disclosure that would teach one skill in the art how to make these

alternative arrangements or how to modify Hiyama's embodiments in view of the disclosure of column 75. Appellant respectfully submits that there is nothing in column 75 that provides sufficient details to one of ordinary skill in the art on how and where to arrange the TV camera and the image pickup means to obtain the invention of claim 54. There is also nothing in column 75 that provides sufficient details to one of ordinary skill in the art on how and where to arrange these features in an optical endoscope to obtain the TV observation system recited in claim 54. Therefore, Appellant respectfully submits that the Examiner has failed to establish a *prima facie* case of anticipation.

Furthermore, Appellant respectfully submits that Hiyama fails to teach or suggest a light source that is integrally constructed with the TV camera, as recited in claim 61. Appellant notes that the Examiner has failed to identify where in Hiyama such a TV camera is disclosed. The Examiner seemed to indicate on page 4, paragraph 9, of the June 22, 2004 Office Action that the TV camera is the image pick-up element 232. However, as can be seen in FIG. 19, the pickup element is not integrally constructed with the TV camera since the element 232 is located at the distal end of the elongated inserting part 207 and the light source is arranged in the light unit 205'. Furthermore, Appellant respectfully submits that column 75 of Hiyama fails to teach or suggest this feature. For at least these reasons, claim 61 is patentable over Hiyama. Therefore, the rejection of claim 61 must be withdrawn.

#### **1) Claim 63**

Claim 63 depends from claim 61 and is therefore patentable for at least the same reasons provided above related to claim 61. Claim 63 further recites that the light source further comprises a control mechanism that controls electric currents applied to the plurality of LEDs, so that amounts of light emission of the LEDs are set in a desired ratio. As mentioned previously, Hiyama fails to teach or suggest this feature. The Examiner interpreted the control mechanism of claim 63 as being the scanning control means 430 shown in FIG. 37. Appellant respectfully disagrees. First, it is respectfully submitted that the scanning control means 430 is not configured to control electric currents applied to the group of light emitting elements 423. Rather, scanning control means 430 merely apply a voltage to the actuator 428 on which the group of light emitting elements 423 is disposed. Second, for the same reasons set forth above, the

scanning control means 430 is not configured to control electric currents applied to a plurality of LEDs to control ratios of light emission. Hiyama fails to teach or suggest a plurality of LEDs that is used to provide illuminating light. The cited element merely scans the light rows, it does not control a ratio of light emission. For at least this reason, it is respectfully submitted that claim 63 is patentable over Hiyama. Therefore, the rejection of claim 63 must be withdrawn.

**g) Claim 64**

Claim 64 depends from claim 61 and is therefore patentable for at least the same reasons provided above related to claim 61. Claim 64 depends from claim 61 and is therefore patentable for at least the same reasons provided above related to claim 61. Claim 64 further recites that the light source is configured to sequentially emit a light of at least three colors, and comprises an LED that emits red light, an LED that emits green light, and an LED that emits blue light. Appellant respectfully submits that these features are not taught or suggested in Hiyama. Appellant notes that the Examiner has failed to identify in the Final Office Action where such features are disclosed. For at least this reason, it is respectfully submitted that claim 64 is patentable over Hiyama. Therefore, the rejection of claim 64 must be withdrawn.

**h) Claim 65**

Claim 65 depends from claim 61 and is therefore patentable for at least the same reasons provided above related to claim 61. Claim 65 recites that the light source further comprises an optical element that compounds light emitted from the plurality of LEDs. As mentioned previously, Hiyama fails to teach or suggest this feature. First, Appellant respectfully notes that Hiyama fails to teach or suggest a plurality of LEDs for the reasons provided above in relation to claim 61 or 54. Second, Appellant respectfully submits that Hiyama fails to teach or suggest an optical element that compounds light emitted from a plurality of LEDs. The optical element 224 disclosed in the embodiment of FIG. 19 is merely adapted to condense light from the single LED 255. There is nothing in Hiyama that indicates that optical element 224 can be configured to compound light from the group of light emitting elements 423, much less from a plurality of LEDs. In fact, Hiyama teaches away from such a possibility as Hiyama

teaches that a group of condenser lenses is needed to project light from the group of light emitting elements 423. For at least this reason, it is respectfully submitted that claim 64 is patentable over Hiyama. Therefore, the rejection of claim 64 must be withdrawn.

**i) Claim 68**

Appellant respectfully submits that Hiyama fails to teach or suggest all of the features recited by independent claim 68. In particular, Hiyama fails to teach or suggest a light source mounted on an endoscope that comprises, *inter alia*, a holding part continuously extending from a proximal end of the insertion part, an eyepiece section formed on the holding part and providing an optical connector to attach a TV camera to receive an optical image therethrough, a light guide that introduces illumination light to a distal end of the insertion part, a light source connecting section formed on the holding part to achieve removable connection of the light source. As mentioned in the discussion related to independent claims 54 and 61, these features are not disclosed or suggested in Hiyama.

Furthermore, Hiyama fails to teach or suggest a light source mounted on an endoscope comprising a plurality of LEDs and supplies illumination light to the light guide of the endoscope. As mentioned previously, Hiyama does not disclose that a plurality of LEDs supplies illumination light. For at least this reason, it is respectfully submitted that claim 68 is patentable over Hiyama. Therefore, the rejection of claim 68 must be withdrawn.

In addition and as mentioned previously, Appellant respectfully submits that there is nothing in column 75 that provides sufficient details to one of ordinary skill in the art on how and where to arrange the TV camera and the image pickup means to obtain the invention of claim 54. There is also nothing in column 75 that provides sufficient details to one of ordinary skill in the art on how and where to arrange these features in an optical endoscope to obtain the TV observation system recited in claim 54. Appellant respectfully notes that "to anticipate, the reference must...enable one of skill in the art to make and use the claimed invention." *Bristol-Myers Squibb Co. v. Ben Venue Laboratories, Inc.*, 246 F.3d 1368, 1374, 58 USPQ2d 1508 (fed. Cir. 2001). Furthermore, "the identical invention must be shown in as complete detail as is

contained in the claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1126, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989) (Emphasis added). Appellant respectfully submits that column 75 merely discloses that alternative arrangements may be possible. It does not contain an enabled disclosure that would teach one skill in the art how to make these alternative arrangements or how to modify Hiyama's embodiments in view of the disclosure of column 75. Appellant respectfully submits, therefore, that the rejection must be withdrawn.

**j) Claim 69**

Claim 69 depends from claim 68 and is therefore patentable for at least the same reasons provided above related to claim 68. Claim 69 recites that the light source further comprises an optical element that compounds light emitted from the plurality of LEDs. As mentioned previously, Hiyama fails to teach or suggest this feature. First, Appellant respectfully notes that Hiyama fails to teach or suggest a plurality of LEDs for the reasons provided above in relation to claim 68, 61 or 54. Second, Appellant respectfully submits that Hiyama fails to teach or suggest an optical element that compounds light emitted from a plurality of LEDs. The optical element 224 disclosed in the embodiment of FIG. 19 is merely adapted to condense light from the single LED 255. Hiyama does not teach or suggest that optical element 224 can be configured to compound light from the group of light emitting elements 423, much less from a plurality of LEDs. In fact, Hiyama teaches away from this feature as Hiyama teaches that a group of condenser lenses is needed to project light from the group of light emitting elements 423. For at least this reason, it is respectfully submitted that claim 69 is patentable over Hiyama. Therefore, the rejection of claim 69 must be withdrawn.

**k) Claim 70**

Claim 70 depends from claim 68 and is therefore patentable for at least the same reasons provided above related to claim 68. Claim 70 also recites that the light source further comprises a control mechanism that controls electric currents applied to the plurality of LEDs, so that amounts of light emission of the LEDs are set in a desired ratio. As mentioned previously, Hiyama fails to teach or suggest this feature. The Examiner interpreted the control mechanism of claim 70 as being the scanning control means 430 shown in FIG. 37. Appellant respectfully disagrees. First, it is respectfully

submitted that the scanning control means 430 is not configured to control electric currents applied to the group of light emitting elements 423. Rather, scanning control means 430 merely apply a voltage to the actuator 428 on which the group of light emitting elements 423 is disposed. Second, for the same reasons set forth above, the scanning control means 430 is not configured to control electric currents applied to a plurality of LEDs to control ratios of light emission. Hiyama fails to teach or suggest a plurality of LEDs that is used to provide illuminating light. The cited element merely scans the light rows, it does not control a ratio of light emission. For at least this reason, it is respectfully submitted that claim 70 is patentable over Hiyama. Therefore, the rejection of claim 70 must be withdrawn.

**C. The Law Regarding Factual Inquiries to Determine Obviousness/Nonobviousness Under 35 U.S.C. § 103(a)**

Several basic factual inquiries must be made to determine obviousness or non-obviousness of patent application claims under 35 U.S.C. § 103. These factual inquiries are set forth in *Graham v. John Deere Co.*, 383 US 1, 17, 148 USPQ 459, 467 (1966):

Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or non-obviousness of the subject matter is determined.

Application of this test, however, involves a factual inquiry. As stated by the Federal Court in *In re Ochiai*, 71 F.3d 1565, 37 USPQ2d 1127, 1131 (Fed. Cir. 1995):

[T]he test of obviousness vel non is statutory. It requires that one compare the claim's subject matter as a whole with the prior art to which the subject matter pertains. 35 U.S.C. § 103.

The inquiry is thus highly fact-specific by design.... When the references cited by the Examiner fail to establish a prima facie case of obviousness, the rejection is improper and will be overturned. *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988) (emphasis added).

In rejecting claims under 35 U.S.C. § 103(a), an Examiner bears an initial burden of presenting *a prima facie* case of obviousness. *A prima facie* case of obviousness is established only if there is a suggestion or motivation to combine reference teachings; a reasonable expectation of success; and the prior art references, when combined, teach or suggest all the claim limitations. If an Examiner fails to establish *a prima facie* case, a rejection is improper and will be overturned. *See In re Rijckaert*, 9 F.3d 1531, 28 USPQ2d 1955 (Fed. Cir. 1993). "If examination ... does not produce a *prima facie* case of unpatentability, then without more, the Applicant is entitled to the grant of the patent." *In re Oetiker*, 977 F.2d 1443, 1445-46, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

**D. Rejection Under 35 U.S.C. § 103(a)**

**1. The Cited Reference**

**a) Hiyama**

The details of Hiyama are explained above in relation to the rejection under 35 U.S.C. § 102.

**2. Claims 56 and 62 are not obvious in view of Hiyama**

**a) Claim 56**

Claim 56 depends from claim 54 and is therefore patentable by virtue of its dependency from claim 54. In particular, Appellant respectfully submits that the features of claims 56 and 54 are not rendered obvious in view of Hiyama, and that Hiyama teaches away from the invention of claim 56. For example, claim 56 recites a TV camera that is optically connected to the eyepiece section of the endoscope to receive an optical image through the eyepiece section. By contrast, Hiyama discloses a series of embodiments that are all directed to an electronic endoscope.

Furthermore, it is respectfully submitted that claim 56 is not rendered obvious in view of Hiyama at least because this claim recites a TV observation system for an endoscope wherein the TV camera further comprises a battery that supplies an electric current to the light source. The Examiner indicated that a battery was a common power supply and that it would have been obvious to combine such device with the TV observation system of claim 56. Appellant respectfully disagrees. There is no discussion in Hiyama on how to supply power to the endoscope. More particularly, there is no



discussion of how to supply power to the light source, or that the light source should be powered using a system in which the TV camera (which is not described in detail in Hiyama) comprises a battery for the light source. There is absolutely no motivation or suggestion in Hiyama to substitute a particular power supply with another, much less to use a battery as a power source. For at least this reason, it is respectfully submitted that claim 56 is patentable over Hiyama. Therefore, it is respectfully requested that the rejection of claim 56 be withdrawn.

**b) Claim 62**

Claim 62 depends from claim 61 and is therefore patentable by virtue of its dependency from claim 61. It is respectfully submitted that Hiyama does not render obvious the features of claims 61 and 62, for at least the same reasons provided above for claim 56.

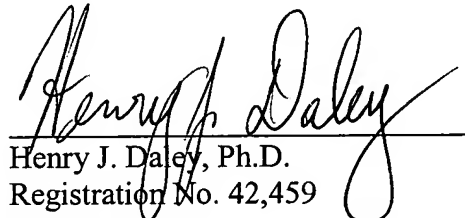
Furthermore, it is respectfully submitted that claim 62 is not rendered obvious over Hiyama at least because this claim recites a TV observation system for an endoscope wherein the TV camera further comprises a battery that supplies an electric current to the light source. As mentioned previously, Hiyama does not teach or suggest a power source that could be used to supply power to the endoscope. More particularly, there is no discussion of how to supply power to the light source, or that the light source should be powered using a system in which the TV camera (which is not described in detail in Hiyama) comprises a battery for the light source. Therefore, there is absolutely no motivation or suggestion in Hiyama to substitute a particular power supply with another, much less to use a battery as a power source. For at least this reason, it is respectfully submitted that claim 62 is patentable over Hiyama. Therefore, it is respectfully requested that the rejection of claim 62 be withdrawn.

## V. CONCLUSION

For at least the reasons discussed above, it is respectfully submitted that claims 54-58, 61-65 and 68-70 are not anticipated or rendered obvious by the cited references. For the above reasons, Appellant respectfully requests this Honorable Board to reverse the rejections of the claims.

Respectfully submitted,

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## **VI. CLAIMS APPENDIX - 37 C.F.R. §41.37(c)(1)(viii)**

Claims 54-58, 61-65 and 68-70 are as follows:

1. - 53. (Cancelled)

54. (Previously Presented) A TV observation system for an endoscope, comprising:

an endoscope;  
a TV camera; and a  
light source,

wherein the endoscope has an insertion part having a thin and long shape, a holding part continuously extending from a proximal end of the insertion part, an eyepiece section formed on the holding part, a light guide that introduces illumination to a distal end of the insertion part, a light source connecting section formed on the holding part to achieve removable connection of the light source,

wherein the TV camera has an image pickup element and said TV camera is optically connected to the eyepiece section of the endoscope to receive an optical image through said eyepiece section, and

wherein the light source comprises a plurality of LEDs, said light source is removably connected to the light source connecting section, and the light source supplies illumination light to the light guide of the endoscope.

55. (Previously Presented) A TV observation system for an endoscope according to claim 54, wherein the light source further comprises an optical element that compounds light emitted from the plurality of LEDs.

56. (Previously Presented) A TV observation system for an endoscope according to claim 54, wherein the TV camera further comprises a battery that supplies an electric current to the light source.

57. (Previously Presented) A TV observation system for an endoscope according to claim 54, wherein the light source further comprises a control mechanism that controls electric currents applied to the plurality of LEDs, so that amounts of light emission of the LEDs are set in a desired ratio.

58. (Previously Presented) A TV observation system for an endoscope according to claim 54, wherein the light source is configured to sequentially emit a light of at least three colors, and comprises a LED that emits red light, a LED that emits green light, and a LED that emits blue light.

59. (Withdrawn) A TV observation system for an endoscope according to claim 55, wherein the optical element is a prism that has a cubic shape made of two right-angled prisms cemented together at fitting surfaces, and the fitting surfaces are processed with a bandpass coating, which has a characteristic to transmit rays with predetermined wavelengths and to reflect remaining rays.

60. (Withdrawn) A TV observation system for an endoscope according to claim 55, wherein the optical element is a planar-plate optical member having a fine pattern of grooves engraved on a surface thereof, and compounds light emitted from the plurality of LEDs using a diffraction effect.

61. (Previously Presented) A TV observation system for an endoscope, comprising:

- an endoscope;
- a TV camera; and a
- light source,

wherein the endoscope has an insertion part having a thin and long shape, a holding part continuously extending from a proximal end of the insertion part, an eyepiece section formed on the holding part, a light guide that introduces illumination light to a distal end of the insertion part, a light source connecting section formed on the holding part to achieve removable connection of the light source,

wherein the TV camera has an image pickup element and said TV camera is optically connected to the eyepiece section of the endoscope to receive an optical image through said eyepiece section,, and

wherein the light source comprises a plurality of LEDs, and said light source is integrally constructed with the TV camera.

62. (Previously Presented) A TV observation system for an endoscope according to claim 61, wherein the TV camera further comprises a battery that supplies an electric current to the light source.

63. (Previously Presented) A TV observation system for an endoscope according to claim 61, wherein the light source further comprises a control mechanism that controls electric currents applied to the plurality of LEDs, so that amounts of light emission of the LEDs are set in a desired ratio.

64. (Previously Presented) A TV observation system for an endoscope according to claim 61, wherein the light source is configured to sequentially emit light of at least three colors, and comprises a LED that emits red light, a LED that emits green light, and a LED that emits blue light.

65. (Previously Presented) A TV observation system for an endoscope according to claim 61, further comprising an optical element that compounds light emitted from the plurality of LEDs.

66. (Withdrawn) A TV observation system for an endoscope according to claim 65, wherein the optical element is a prism that has a cubic shape made of two right-angled prisms cemented together at fitting surfaces, and the fitting surfaces are processed with a bandpass coating, which has a characteristic to transmit rays with predetermined wavelengths and to reflect remaining rays.

67. (Withdrawn) A TV observation system for an endoscope according to claim 65, wherein the optical element is a planar-plate optical member having a fine pattern of grooves engraved on a surface thereof, and compounds light emitted from the plurality of LEDs using a diffraction effect.

68. (Previously Presented) A light source mounted on an endoscope that comprises an insertion part having a thin and long shape, a holding part continuously extending from a proximal end of the insertion part, an eyepiece section formed on the holding part and providing an optical connector to attach a TV camera to receive an optical image therethrough, a light guide that introduces illumination light to a distal end of the insertion part, a light source connecting section formed on the holding part to achieve removable connection of the light source,

the light source comprising a plurality of LEDs and supplies illumination light to the light guide of the endoscope.

69. (Previously Presented) A light source according to claim 68, further comprising an optical element that compounds light emitted from the plurality of LEDs.

70. (Previously Presented) A light source according to claim 68, further comprising a control mechanism that controls electric current applied to the plurality of LEDs, so that amounts of light emission of the LEDs are set in a desired ratio.

71. (Withdrawn) A light source according to claim 69, wherein the optical element is a prism that has a cubic shape made of two right angled prisms cemented together at fitting surfaces, and the fitting surfaces are processed with a bandpass coating, which has a characteristic to transmit rays with predetermined wavelengths and to reflect remaining rays.

72. (Withdrawn) A light source according to claim 69, wherein the optical element is a planar-plate optical member having a fine pattern of grooves engraved on a surface thereof, and compounds light emitted from the plurality of LEDs using a diffraction effect.

73. (Withdrawn) An endoscope system, comprising:  
an endoscope having a proximal end and a distal end;

a TV camera attachment section having an end structured to attach to and detach from said proximal end of said endoscope, said TV camera attachment section comprising:

a TV camera having an image sensor that is constructed to convert a received optical image to a corresponding electrical signal, said TV camera being structured to be optically coupled to said endoscope through said proximal end of said endoscope,

a light source section structured to be optically coupled to said endoscope,

wherein attachment and detachment of said TV camera attachment section effects attachment and detachment of said TV camera and said light source as a unit.

74. (Withdrawn) An endoscope system according to claim 73, further comprising a power supply electrically connected to said TV camera and said light source section, said power supply being external to said TV camera attachment section.

75. (Withdrawn) An endoscope system according to claim 74, further comprising a TV processor external to said TV camera attachment section and in electrical communication with said TV camera to receive electrical signals from said image sensor of said TV camera.

76. (Withdrawn) An endoscope system according to claim 75, further comprising a monitor in electrical communication with said TV processor.

77. (Withdrawn) An endoscope system according to claim 75, wherein said power supply and said TV processor are attached within a common containment structure that is external to said TV camera attachment section.

78. (Withdrawn) An endoscope system according to claim 73, wherein said light source section comprises a plurality of LEDs.